

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) A measurement station for use with a processing machine that includes a processing station for processing a semiconductor wafer and an exit station outside the processing station and including a wafer transfer means and at least one wafer cassette, the measurement station being so dimensioned as to be installable within the exit station of the processing machine and comprising a spectrophotometric measuring unit and a holding unit for receiving and holding the wafer in a measuring position during measurements.

2. (Canceled)

3. (Canceled)

4. (Original) The measurement station according to Claim 1, wherein said measuring unit is operable to measure a thickness of at least a top layer of the wafer.

5. (previously presented) The measurement station according to Claim 1, wherein said measuring unit is operable to carry out optical inspection of the processed wafer.

6. (Currently amended) ~~The measurement station according to Claim 1,~~ A measurement station for use with a processing machine that includes a processing station for processing a

*Cl*  
*cont*  
semiconductor wafer and an exit station outside the processing station and including a wafer transfer means and at least one wafer cassette, the measurement station being so dimensioned as to be installable within the exit station of the processing machine and comprising a spectrophotometric measuring unit and a holding unit for receiving and holding the wafer in a measuring position during measurements, wherein said measuring unit further comprises an optical imaging system operable to locate measurements.

7. (previously presented) The measurement station according to Claim 6, wherein said imaging system comprises a charge coupled device (CCD).

8. (previously presented) The measurement station according to Claim 1, wherein the measuring unit comprises an optical system including focusing optics for focusing illuminating light onto the wafer and collecting light reflected from the illuminated wafer, and a beam splitter for directing the illuminating light towards the wafer and directing the collected reflected light towards the spectrophotometer.

9. (previously presented) The measurement station according to Claim 6, wherein the optical system comprises a focusing optics for focusing illuminating light onto the wafer and collecting light reflected from the illuminated wafer; a beam splitter for directing the illuminating light towards the wafer and directing the collected reflected light towards the spectrophotometer; and a pin hole mirror accommodated in an optical path of the collected light propagating towards the spectrophotometer and separating a portion of the collected light to propagate to a charge coupled device (CCD).

10. (previously presented) The measurement station according to Claim 1, comprising a support assembly for supporting the wafer that is to be received by the holding unit.

11. (previously presented) The measurement station according to Claim 1, wherein the measuring and holding units are separated by a window through which at least a part of the wafer being held is viewable to enable optical measurements.

12. (Original) The measurement station according to Claim 1, wherein said holding unit comprises an assembly movable along an axis perpendicular to the wafer's surface, thereby enabling said holding of the wafer in the measuring position.

13. (Canceled)

14. (previously presented) The measurement station according to Claim 1, having a footprint in at least one dimension of about a size of the wafer's diameter.

15. (previously presented) A measurement station for use with a processing machine that comprises a processing station for processing a semiconductor wafer and an exit station outside the processing station and including a wafer transfer means and at least one wafer cassette, the measurement station comprising an optical measuring unit and a holding unit for receiving the wafer and holding the processed wafer in a measuring position during measurements, said measurement station being associated with the exit station of the processing machine and having a footprint in at least one dimension of about a size of the wafer's diameter.

16. (previously presented) A processing machine for processing a semiconductor wafer, the processing machine comprising a

processing station having a processing tool to be applied to the wafer, and an optical measurement station, the optical measurement station being associated with an exit station of the processing machine and including a wafer transfer means and at least one wafer cassette and comprising a spectrophotometric measuring unit and a holding unit for receiving the wafer and holding it in a measuring position during measurements.

17. (Canceled)

18. (Original) The processing machine according to Claim 16, wherein said processing tool is a polisher.

19. (Original) The processing machine according to Claim 16, and also comprising a robot for supplying the processed wafer to the measurement station.

20. (Canceled)

21. (Original) The processing machine according to Claim 16, wherein said measuring unit is operable to measure a thickness of at least a top layer of the wafer.

22. (previously presented) ~~The processing machine according to Claim 20,~~ A processing machine for processing a semiconductor wafer, the processing machine comprising a processing station having a processing tool to be applied to the wafer, and an optical measurement station, the optical measurement station being associated with an exit station of the processing machine and including a wafer transfer means and at least one wafer cassette and comprising a spectrophotometric measuring unit and a holding unit for receiving the wafer and holding it in a measuring position during measurements wherein said measuring

unit comprises an optical imaging system operable to locate measurements.

23. (previously presented) The processing machine according to Claim 16, wherein the measuring unit comprises an optical system including focusing optics for focusing illuminating light onto the wafer and collecting light reflected from the illuminated wafer; and a beam splitter for directing the illuminating light towards the wafer and directing the collected reflected light towards the spectrophotometer.

24. (previously presented) The processing machine according to Claim 22, wherein the optical system comprises a focusing optics for focusing illuminating light onto the wafer and collecting light reflected from the illuminated wafer; a beam splitter for directing the illuminating light towards the wafer and directing the collected reflected light towards the spectrophotometer; and a pin hole mirror accommodated in an optical path of the collected light and separating a portion of the collected light to a light detector.

25. (previously presented) The processing machine according to Claim 22, wherein said imaging system comprises a charge coupled device (CCD).

26. (previously presented) The processing machine according to Claim 16, and also comprising a support assembly for supporting the wafer that is to be received by the holding unit.

27. (Original) The processing machine according to Claim 16, wherein the measuring and holding unit are separated by a window through which at least a part of the wafer being held is viewable to enable optical measurements.

28. (Original) The processing machine according to Claim 16, wherein said holding unit comprises an assembly movable along an axis perpendicular to the wafer's surface, thereby enabling said holding of the wafer in the measuring position.

29. (Canceled)

*Subcl*  
30. (previously presented) The processing machine according to Claim 16, wherein said measurement station has a footprint in at least one dimension of about a size of the wafer's surface.

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31. (Canceled)

32. (previously presented) A method for processing a semiconductor wafer by a processing machine, the method comprising:

- applying a processing tool of said processing machine to the wafer, thereby performing said processing;
- supplying the processed wafer to an exit station of said processing machine including a wafer transfer means and at least one wafer cassette;
- transferring the processed wafer by a robot of the exit station to a holding unit of a measurement station located in said exit station; and
- applying spectrophotometric measurements to the processed wafer held by the holding unit while in the exit station

33. (previously presented) A method for processing a semiconductor wafer by a processing machine, the method comprising:

- applying a processing tool of said processing machine to the wafer, thereby performing said processing;

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- supplying the processed wafer to an exit station of said processing machine including a wafer transfer means and at least one wafer cassette;
  - transferring the processed wafer by a robot of the exit station to a holding unit of a measurement station located in said exit station; and
  - applying optical inspection to the processed wafer held by the holding unit while in the exit station.
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